

CLAIMS

What is claimed is:

1. An apparatus for protection switching, the apparatus comprising:
a detector; and
5 a first protector configured to perform protection switching in response to one or more notifications of a condition received from the detector, and to register with the detector to be notified of the condition;
 wherein the detector is configured to receive one or more registration requests from the first protector, and to notify the first protector of the condition upon detection of
10 the condition.
2. The apparatus of claim 1, wherein said protection switching includes switching the physical path of traffic from a working facility to a backup facility while maintaining an UP state indication of a single logical interface including the working facility and the backup facility such that higher-level routing information does not change in response to
15 said switching the physical path.
3. The apparatus of claim 1, wherein said protection switching includes switching traffic to a backup facility from a facility corresponding to the condition.
4. The apparatus of claim 1, wherein said protection switching includes switching traffic to a backup component from a component corresponding to the condition.

5. The apparatus of claim 1, further comprising a second protector;
wherein the second protector is configured to perform protection switching in response to one or more notifications received from the first protector, and to register with the first protector to be notified of a particular condition;
 - 5 wherein the first protector is configured to receive one or more registration requests from the second protector, to notify the second protector upon notification of the particular condition, and to register with the detector to be notified of the particular condition; and
 wherein the detector is configured to identify the particular condition, and to
 - 10 notify the first protector of the particular condition upon detection of the particular condition.
6. The apparatus of claim 1, further comprising a second protector;
wherein the second protector is configured to perform protection switching in response to one or more notifications received from the first protector, and to register with the first protector to be notified of a particular condition;
 - 15 wherein the first protector is configured to receive one or more registration requests from the second protector, to notify the second protector upon notification of the particular condition if previously notified of another particular condition else not to notify the second protector of the particular condition, and to register with the detector to be
 - 20 notified of the particular condition; and
 wherein the detector is configured to identify the particular condition, and to notify the first protector of the particular condition upon detection of the particular condition.

7. The apparatus of claim 1, further comprising a second protector;
wherein the second protector is configured to perform protection switching in response to one or more notifications received from the first protector, and to register with the first protector to be notified of a particular condition;
 - 5 wherein the first protector is configured to receive one or more registration requests from the second protector, to notify the second protector upon notification of the particular condition if not previously notified of another particular condition else not to notify the second protector of the particular condition, and to register with the detector to be notified of the particular condition; and
 - 10 wherein the detector is configured to identify the particular condition, and to notify the first protector of the particular condition upon detection of the particular condition.
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8. The apparatus of claim 1, further comprising a second protector;
wherein the second protector is configured to perform protection switching in response to one or more notifications received from the first protector and the detector, to register with the first protector to be notified of a particular condition, and to register with the detector to be notified of a second particular condition;
 - 15 wherein the first protector is configured to send a notification of the particular condition to the second protector in response to the notification of the particular condition by the detector, and register with the detector to be notified of the particular condition; and
 - 20 wherein the detector is configured to receive one or more registration requests from the first and second protectors, to notify the first protector upon detection of the particular condition, and to notify the second protector upon detection of the second particular condition.
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9. The apparatus of claim 1, further comprising a second protector;
wherein the second protector is configured to perform protection switching in response to one or more notifications received from the first protector, and to register with the first protector to be notified of a particular condition;
- 5 wherein the first protector is configured to receive one or more registration requests from the second protector, and to register with the detector to be notified of the particular condition;
 wherein the detector is configured to identify the particular condition, and to notify the first protector of the particular condition upon detection of the particular condition; and
10 wherein the first protector is further configured to attempt to protection switch upon notification of the particular condition, and in response to said attempted protection switch failing, notifying the second protector of the particular condition, else not notifying the second protector of the particular condition.
- 15 10. The apparatus of claim 1, further comprising a second protector and a third protector;
 wherein the second protector is configured to perform protection switching in response to one or more notifications received from the first protector, and to register with the first protector to be notified of the condition;
- 20 wherein the first protector is configured to receive one or more registration requests from the second protector, and to determine whether or not to cause a protection switch or to notify the second protector of the condition;
 wherein the third protector is configured to perform protection switching in response to one or more notifications received from the second protector, and to register with the second protector to be notified of the condition; and
25 wherein the second protector is configured to receive one or more registration requests from the third protector, and to determine whether or not to cause a protection switch or to notify the third protector of the condition.

11. An apparatus for protection switching, the apparatus comprising:
 - a detector configured to detect a particular condition and to notify a first protector of the particular condition;
 - the first protector configured to receive an indication of the particular condition
- 5 from the detector, and to identifying whether or not to (a) perform protection switching itself based on the particular condition or (b) to notify a second protector of the particular condition for the second protector to perform protection switching; and
- 10 the second protector configured to receive a notification of the particular condition from the first protector, and in response to perform protection switching based on the particular condition.
12. The apparatus of claim 11, wherein said identifying whether or not to
 - (a) perform protection switching itself based on the particular condition or (b) to notify a second protector of the particular condition includes attempting by the first protector to protection switch, and in response to failure of said protection switch, to notify the second protector of the particular condition.
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13. The apparatus of claim 11, wherein said identifying whether or not to
 - (a) perform protection switching itself based on the particular condition or (b) to notify a second protector of the particular condition includes referencing a data structure to identify whether or not a second particular condition has been previously identified by a
- 20 detector.
14. The apparatus of claim 11, wherein said identifying whether or not to
 - (a) perform protection switching itself based on the particular condition or (b) to notify a second protector of the particular condition is determined based on a fixed or programmed set of rules or user configuration commands.

15. The apparatus of claim 11, wherein the detector is further configured to detect a second particular condition and to notify the second protector of the second particular condition.
16. The apparatus of claim 15, wherein the second protector is configured to receive an indication of the second particular condition from the detector, and to identifying whether or not to (a) perform protection switching itself based on the second particular condition or (b) to notify a third protector of the second particular condition for the third protector to perform protection switching.
17. The apparatus of claim 11, wherein said identifying whether or not to (a) perform protection switching itself based on the second particular condition or (b) to notify a third protector of the second particular condition is determined based on a fixed or programmed set of rules or user configuration commands.
18. An apparatus for protection switching, the apparatus comprising:
 - a detector including means for detecting a particular condition, and means for notifying a first protector of the particular condition;
 - the first protector including means for receiving an indication of the particular condition from the detector, and means for identifying whether or not to (a) perform protection switching itself based on the particular condition or (b) to notify a second protector of the particular condition for the second protector to perform protection switching; and
 - the second protector including means for receiving a notification of the particular condition from the first protector, and means for performing protection switching based on the particular condition.

19. The apparatus of claim 18, wherein said means for identifying whether or not to (a) perform protection switching itself based on the particular condition or (b) to notify a second protector of the particular condition includes means for attempting by the first protector to protection switch and in response to failure of said protection switch, to
5 notify the second protector of the particular condition.

20. The apparatus of claim 18, wherein said identifying whether or not to (a) perform protection switching itself based on the particular condition or (b) to notify a second protector of the particular condition includes means for referencing a data structure to identify whether or not a second particular condition has been previously
10 identified by a detector.

21. The apparatus of claim 18, wherein the detector includes means for detecting a second particular condition and means for notifying the second protector of the second particular condition.

22. The apparatus of claim 21, wherein the second protector includes means for
15 receiving an indication of the second particular condition from the detector, and means for identifying whether or not to (a) perform protection switching itself based on the second particular condition or (b) to notify a third protector of the second particular condition for the third protector to perform protection switching.

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